Proceedings of the Nutrition Society (2018), **77 (OCE4)**, E164 doi:10.1017/S0029665118001702

Summer Meeting, 10–12 July 2018, Getting energy balance right

Effect of a single serving of pecan nuts on blood lipids and weight: a single blind randomised control trial

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Nuts are a common component of many traditional cardioprotective diets primarily due to their ability to lower blood lipids and reduce cardiovascular risk[1,2]. Studies consistently show nut intake is associated with favourable changes in energy balance[3]. However there is a paucity of data examining the acute changes following nut consumption. We sought to examine the effect of a single serving of pecan nuts on plasma lipids and bodyweight.

Participants were sampled from the University of Chester, UK. Individuals (n = 54) were screened for eligibility to participate. Those meeting entry criteria (n = 25) of being either male or female aged 30 years or more and with no previous history of CVD were randomised to either a control (CON) or pecan nut group (PECAN). Participants in the PECAN group received a single 50 g serving of pecan nuts. Capillary blood was taken for analysis of triacylglycerol, total-cholesterol, low-density lipoprotein cholesterol, high-density lipoprotein-cholesterol and non-high density lipoprotein cholesterol (TAG, TC, LDL-C, HDL-C and non-HDL-C, respectively), and anthropometric measurements were performed. All measurements were repeated after 3 days. Participants were instructed to record all food and drink consumed, and not to change their habitual eating habits. Procedures were approved by the Faculty of Medicine, Dentistry and Clinical Sciences Research Ethics Committee, University of Chester.

No significant effect on TC, HDL-C or TAG was observed during the study (Fig. 1A–C). LDL-C decreased by 0.09 ± 0.37 mmol/L and increased by 0.16 ± 0.40 mmol/L in CON and PECAN groups, respectively. Non-HDL-C showed a similar pattern with the CON group showing a decrease and PECAN group displaying an increase (−0.18 ± 0.36 mmol/L vs. 0.16 ± 0.40 mmol/L, respectively). Bodyweight significantly ($P = 0.025$) decreased in the PECAN group when compared to the CON group (−0.58 ± 0.56 kg vs. −0.05 ± 0.55 kg, respectively).

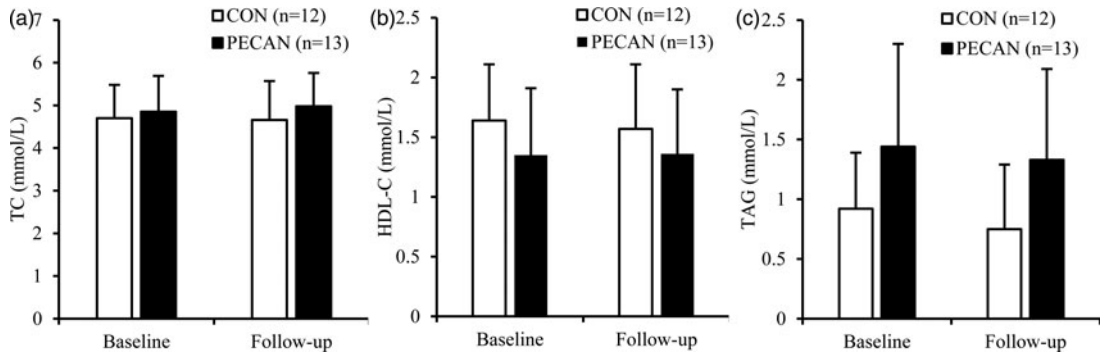

Fig. 1. Changes in TC (A), HDL (B) and TAG (C) during the 3 day study. TC, total cholesterol; HDL-C, high-density lipoprotein-cholesterol; TAG, triacylglycerol; CON, control. Data show means ± SD.

In conclusion, a single serving of pecan nuts had no significant impact on lipid markers of cardiovascular risk. Bodyweight was significantly reduced consistent with recent literature showing a favourable relationship with nut intake and energy balance[3].

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2. Bechthold A, Boeing H, Schwedhelm C, *et al.* (2017) *Crit Rev Food Sci Nutr* **6**, 1–20.
3. Freisling H, Noh H, Slimani N. *et al.* (2017) *Eur J Nutr* **21**, 1–10.